

Subnetting B Exercises

Problem #1

Networks	2	4	8	16	32	64	128	256	512	1024	2048	4096	8192	16384				
Hosts	65,536	32,768	16,384	8,192	4,096	2,048	1,024	512	256	128	64	32	16	8	4			
Mask	128	192	224	240	248	252	254	255	128	192	224	240	248	252	254	255		
Borrowed	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
172.16.	<u>128</u>	<u>64</u>	<u>32</u>	<u>16</u>	<u>8</u>	<u>4</u>	<u>2</u>	<u>1</u>	<u>128</u>	<u>64</u>	<u>32</u>	<u>16</u>	<u>8</u>	<u>4</u>	<u>2</u>	<u>1</u>		

Class: _____
 Default Mask: _____
 Custom Mask: _____
 Bits Borrowed: _____
 Subnets: _____
 Total Hosts: _____
 Usable Hosts: _____

Net	Hosts																		Net	Usable	Broad
1	3k																				
2	3k																				
3	1k																				
4	523																				
5	250																				
6	120																				
7	2																				
8	2																				
9	2																				
10	2																				
11	2																				
12	2																				
13	2																				
14	2																				

Subnetting B Exercises

Problem #1 - Answers

Networks	2	4	8	16	32	64	128	256	512	1024	2048	4096	8192	16384				
Hosts	65,536	32,768	16,384	8,192	4,096	2,048	1,024	512	256	128	64	32	16	8	4			
Mask	128	192	224	240	248	252	254	255	128	192	224	240	248	252	254	255		
Borrowed	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
172.16.	128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1		

Class:	<u>B</u>
Default Mask:	<u>255.255.0.0</u>
Custom Mask:	<u>255.255.240.0</u>
Bits Borrowed:	<u>4</u>
Subnets:	<u>16</u>
Total Hosts:	<u>4096</u>
Usable Hosts:	<u>4094</u>

First 2 Octets Omitted to Save Space

Net	Hosts																	Net	Usable	Broad
1	3k	0	0	0	0													.0.0	.0.1 - .15.254	.15.255
2	3k	0	0	0	1													.16.0	.16.1 - .31.254	.31.255
3	1k	0	0	1	0													.32.0	.32.1 - .47.254	.47.255
4	523	0	0	1	1													.48.0	.48.1 - .63.254	.63.255
5	250	0	1	0	0													.64.0	.64.1 - .79.254	.79.255
6	120	0	1	0	1													.80.0	.80.1 - .95.254	.95.255
7	2	0	1	1	0													.96.0	.96.1 - .111.254	.111.255
8	2	0	1	1	1													.112.0	.112.1 - .127.254	.127.255
9	2	1	0	0	0													.128.0	.128.1 - .143.254	.143.255
10	2	1	0	0	1													.144.0	.144.1 - .159.254	.159.255
11	2	1	0	1	0													.160.0	.160.1 - .175.254	.175.255
12	2	1	0	1	1													.176.0	.176.1 - .191.254	.191.255
13	2	1	1	0	0													.192.0	.192.1 - .207.254	.207.255
14	2	1	1	0	1													.208.0	.208.1 - .223.254	.223.255

Subnetting B Exercises

Problem #2

Networks	2	4	8	16	32	64	128	256	512	1,024	2,048	4,096	8,192	16,384		
Hosts	65,536	32,768	16,384	8,192	4,096	2,048	1,024	512	256	128	64	32	16	8	4	
Mask	128	192	224	240	248	252	254	255	128	192	224	240	248	252	254	255
Borrowed	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
172.31.	<u>128</u>	<u>64</u>	<u>32</u>	<u>16</u>	<u>8</u>	<u>4</u>	<u>2</u>	<u>1</u>	<u>128</u>	<u>64</u>	<u>32</u>	<u>16</u>	<u>8</u>	<u>4</u>	<u>2</u>	<u>1</u>

Class: _____

Default Mask: _____

Custom Mask: _____

Bits Borrowed: _____

Subnets: _____

Total Hosts: _____

Usable Hosts: _____

Net	Hosts								
1	55								
2	54								
3	54								
4	45								
5	43								
6	43								
7	43								
8	42								
9	40								
10	40								
11	40								
12	35								
13	34								
14	30								
15	30								

																Net	Usable	Broad

Subnetting B Exercises

Problem #2 - Answers

Networks	2	4	8	16	32	64	128	256
Hosts	65,536	32,768	16,384	8,192	4,096	2,048	1,024	512
Mask	128	192	224	240	248	252	254	255
Borrowed	1	2	3	4	5	6	7	8
172.31.	128	64	32	16	8	4	2	1

512	1,024	2,048	4,096	8,192	16,384		
256	128	64	32	16	8	4	
128	192	224	240	248	252	254	255
9	10	11	12	13	14	15	16
128	64	32	16	8	4	2	1

Class:	<u>B</u>
Default Mask:	<u>255.255.0.0</u>
Custom Mask:	<u>255.255.255.192</u>
Bits Borrowed:	<u>10</u>
Subnets:	<u>1024</u>
Total Hosts:	<u>64</u>
Usable Hosts:	<u>62</u>

Net	Hosts	0	0	0	0	0	0	0	0
1	55	0	0	0	0	0	0	0	0
2	54	0	0	0	0	0	0	0	0
3	54	0	0	0	0	0	0	0	0
4	45	0	0	0	0	0	0	0	0
5	43	0	0	0	0	0	0	0	1
6	43	0	0	0	0	0	0	0	1
7	43	0	0	0	0	0	0	0	1
8	42	0	0	0	0	0	0	0	1
9	40	0	0	0	0	0	0	1	0
10	40	0	0	0	0	0	0	1	0
11	40	0	0	0	0	0	0	1	0
12	35	0	0	0	0	0	0	1	0
13	34	0	0	0	0	0	0	1	1
14	30	0	0	0	0	0	0	1	1
15	30	0	0	0	0	0	0	1	1

										Net	Usable	Broad
0	0									.0.0	.0.1 - .0.62	.0.63
0	1									.0.64	.0.65 - .0.126	.0.127
1	0									.0.128	.0.129 - .0.190	.0.191
1	1									.0.192	.0.193 - .0.254	.0.255
0	0									.1.0	.1.1 - .1.62	.1.63
0	1									.1.64	.1.65 - .1.126	.1.127
1	0									.1.128	.1.129 - .1.190	.1.191
1	1									.1.192	.1.193 - .1.254	.1.255
0	0									.2.0	.2.1 - .2.62	.2.63
0	1									.2.64	.2.65 - .2.126	.2.127
1	0									.2.128	.2.129 - .2.190	.2.191
1	1									.2.192	.2.193 - .2.254	.2.255
0	0									.3.0	.3.1 - .3.62	.3.63
0	1									.3.64	.3.65 - .3.126	.3.127
1	0									.3.128	.3.129 - .3.190	.3.191